

# Thirty-six new species records of moths (Lepidoptera) for Colombia

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**Abstract.** Thirty-six species and three genera of moths are recorded for the first time in Colombia, in the families Notodontidae (31 spp., 2 genera), Saturniidae (4 spp., 1 genus), and Sphingidae (1 sp.). All records are based on photographs of live individuals attracted to white and UV lights.

**Key words.** Amazonia, Andes, Notodontidae, Saturniidae, Sphingidae

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## INTRODUCTION

Moths are poorly documented in Colombia, and the country does not have a comprehensive list of its species. Only three families of Colombian moths have recent species checklists –Sphingidae (Correa-Carmona et al. 2015), Notodontidae (Prada-Lara et al. 2023), and Saturniidae (Jiménez-Bolívar et al. 2021, Comoglio and Brechlin 2023). However, due to the poor knowledge of the group, these lists probably underestimate the actual number of species occurring in the country. In the Notodontidae, for example, 54 of the 515 species recorded by Prada-Lara et al. (2023) had been first recorded in the country just a few months before their list was published (Bernal and Martínez 2023).

Recent exploration in various areas of Colombia, in a long-term project of popularizing moths, as a follow-up to the field guide of the group for this country (Bernal and Martínez 2023), has revealed 36 species and three genera not included in the above-mentioned lists of Sphingidae, Notodontidae, and Saturniidae. These species, all of which are documented with photographs of live specimens, are reported here for the first time in the country.

## STUDY AREA

We conducted fieldwork in Colombia, between August 2023 and February 2024, at the following five locations: Cauca, Municipio de Piamonte, Estación Agroforestal Guayuyaco, 01°01'14"N, 076°26'41"W, 293 m, 17–18, 20–21 August 2023; Cauca, Río Fragua, Mirador Kwarí, 01°08'34"N, 076°26'41"W, 428 m, 19 August 2023; Valle, western Andes, Municipio de Dagua, Queremal, 03°32'01"N, 076°45'12"W, 1,200 m, 21–25 December 2023; Amazonas, Puerto Nariño, 03°46'47"S, 070°21'56"W, 89 m, 18–20 January 2024 (a Ramsar Site and a part of the Tarapoto OEMC); Amazonas, La Pedrera, Resguardo Curare, 01°18'04"S, 069°42'56"W, 83 m, 22–24 January 2024; Amazonas, La Pedrera, 01°19'06"S, 069°35'10"W, 74 m, 22 January–02 February 2024. Additionally, we included two species photographed by collaborators from Vaupés, Mitú, 01°15'36"N, 070°14'07"W, 180 m, on December 17, 2022, and Barbosa, Antioquia, central Andes, 06°27'36"N, 075°19'12"W, 1,400 m, on June 16, 2022.

## METHODS

Moths were attracted using white and UV lights and photographed at white sheets or surrounding surfaces. Photos were taken by the authors (BM, RB) using Nikon P900 and Nikon P1000 cameras, except for two of them, which were taken by other contributors. Identifications were made by the authors, using the websites



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Butterflies and Moths of Costa Rica (Ziegler 2023), Bold (Centre for Biodiversity Genomics 2023), and Fieldguide (2020), as well as the works of Guevara C. et al. (2002), Piñas Rubio (2004), Piñas and Manzano (2002), Seitz (1906–1938) and Miller (2009). In all cases, the protologues of the species, and images of their types, when available, were contrasted to the above-mentioned information, to avoid repeating existing errors in identification. The sphingid species was identified by specialist Yenni Correa-Carmona. Taxonomy and nomenclature of the Notodontidae follow Becker (2014) and Schintlmeister (2022). Known distributions were derived from GBIF (2023), Bold (Centre for Biodiversity Genomics 2023), and other sources.

## RESULTS

Notodontidae  
Dioptinae

### *Oricia phryganeata* (Warren, 1917)

Figures 1A, 4A

**Observation.** COLOMBIA – CAUCA • Río Fragua, Mirador Kwarí; 01°08'34"N, 076°26'41"W; alt. 428 m; 19.VIII.2023; B. Martínez obs., photographed at white sheet.

**Identification.** This species can be confused only with the Ecuadorean *O. hillmani* Miller, 2008. The white spot on the forewing is ovoid in *O. phryganeata*, whereas it is 8-shaped in *O. hillmani* (Miller 2009).

**Comments.** Previously known from northeastern Ecuador to Bolivia (Miller 2009). This is the first record of the genus *Oricia* in Colombia.

### *Phaeochlaena bicolor* (Möschler, 1877)

Figures 1B, 4B

**Observation.** COLOMBIA – CAUCA • Río Fragua, Mirador Kwarí; 01°08'34"N, 076°26'41"W; alt. 428 m; 19.VIII.2023; B. Martínez obs., photographed at white sheet.

**Identification.** *Phaeochlaena bicolor* and *P. solilucis* have very similar wing patterns, but in *P. bicolor* the middle yellow band on the forewing is considerably wider and does not reach the costal margin (see images in Miller 2009).

**Comments.** Previously known from eastern Ecuador to French Guiana (Miller 2009).

Hemiceratinae

### *Apela acutidivisa* Rothschild, 1917

Figures 1C, 5E

**Observation.** COLOMBIA – AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 27.I.2024; R. Bernal obs., photographed at white sheet.

**Identification.** This species is very similar to *A. neobule*, but the forewing is entirely cinnamon-buff, and the oblique band is single instead of double, displaying a deep maroon-rufous hue (Rothschild 1917).

**Comments.** Previously known from Guyana to French Guiana and northern Brazil.

### *Apela picturata* Dognin, 1916

Figures 1D, 4A

**Observation.** COLOMBIA – AMAZONAS • Puerto Nariño; 03°46'47"S, 070°21'56"W; alt. 89 m; 18.I.2024; B. Martínez obs., photographed at white sheet.

**Identification.** The double elliptical white basal line touching the first cell spot is characteristic of this species (Dognin 1916).

**Comments.** Previously known from French Guiana and Suriname.

### *Canodia carmelitoides* Guenée, 1852

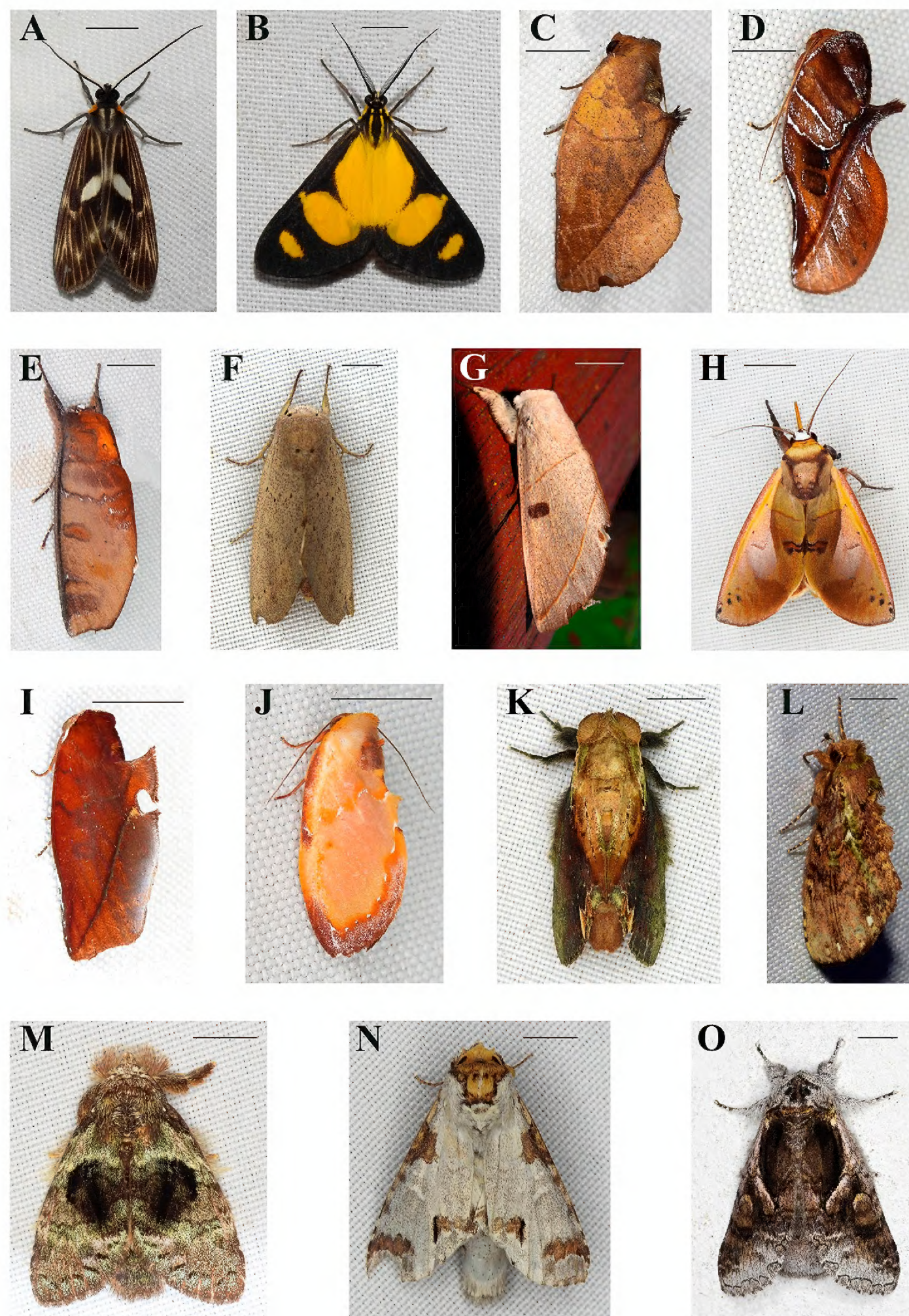
Figures 1E, 4C

**Observation.** COLOMBIA – AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 30.I.2024; B. Martínez obs., photographed at white sheet.

**Identification.** *Canodia carmelitoides* differs from *C. difformis* Herrich-Schäffer, 1854, the other species known in Colombia, in its single antemedial and medial lines on the forewing (instead of double).

**Comments.** Previously known from southeastern Brazil.





**Figure 1.** New records of moth species for Colombia. Notodontidae. **A.** *Oricia phryganeata*. **B.** *Phaeochlaena bicolor*. **C.** *Apela acutidivisa*. **D.** *Apela picturata*. **E.** *Canodia carmelitoides*. **F.** *Hemiceras alba*. **G.** *Hemiceras lissanella*. **H.** *Hemiceras metallescens*. **I.** *Maschane calpe*. **J.** *Maschane ciliata*. **K.** *Cecrita poulsoni*. **L.** *Dottia effecta*. **M.** *Farigia magniplaga*. **N.** *Ginaldia infanta*. **O.** *Hemipecteros lunula*. Scale bar: 5 mm.

***Hemiceras alba* Walker, 1865**

Figures 1F, 4C

**Observation.** COLOMBIA – CAUCA • Municipio de Piamonte, Estación Agroforestal Guayuyaco; 01°01'14"N, 076°26'41"W; alt. 293 m; 18.VIII.2023; R. Bernal obs., photographed at white sheet.

**Identification.** Both males and females of this species present a whitish coloration with small brown speckles and two incomplete lines of black dots, with the second one being oblique.

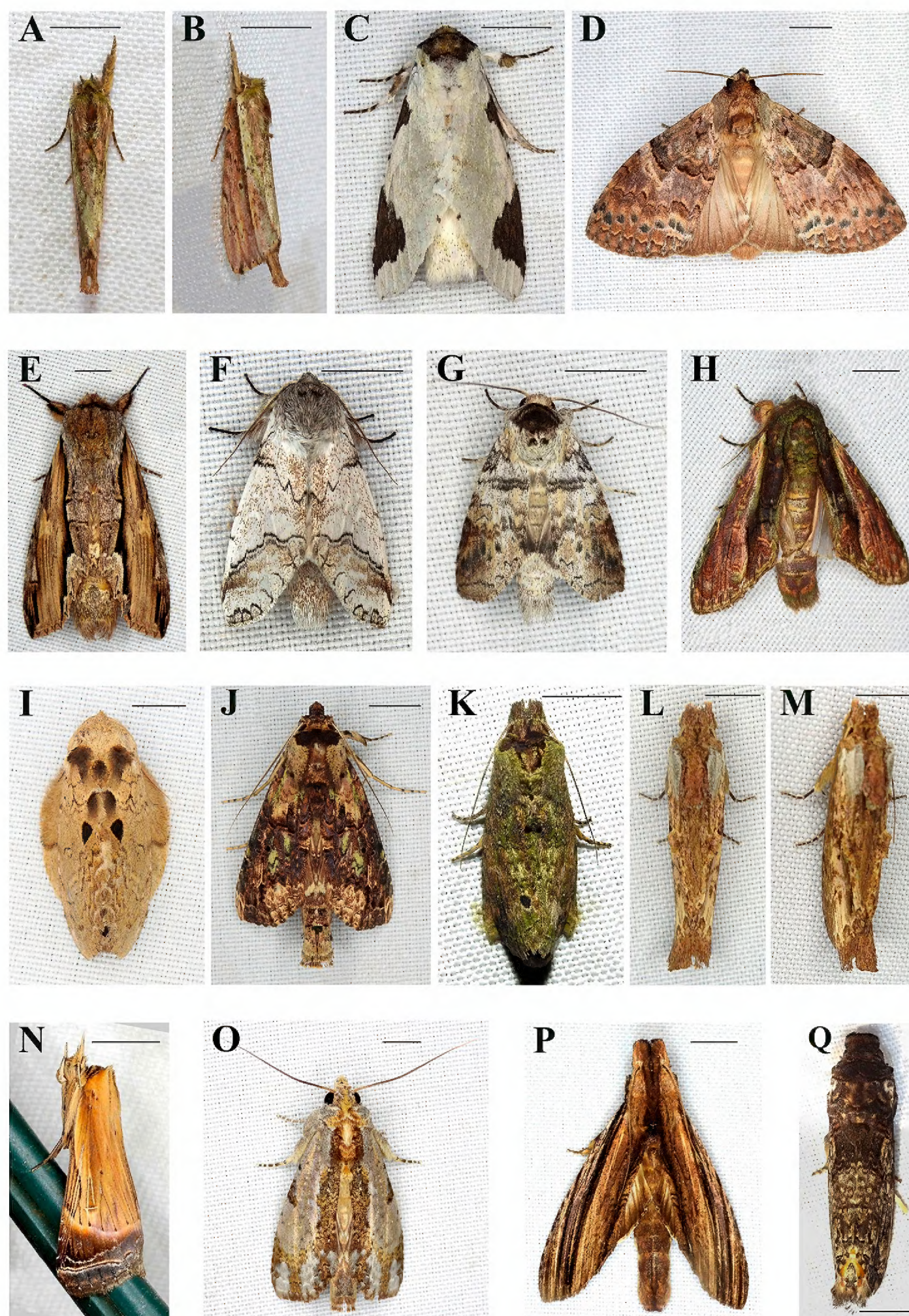
**Comments.** Recorded from México to Paraguay, this species was previously reported in Colombia by Druce (1881–1900) but overlooked by Prada-Lara et al. (2023). It is therefore recorded here again.

***Hemiceras lissanella* Thiaucourt, 1994**

Figures 1G, 4E

**Observation.** COLOMBIA – CAUCA • Río Fragua, Mirador Kwarí; 01°08'34"N, 076°26'41"W; alt. 428 m; 19.VIII.2023; B. Martínez obs., photographed at wall near white sheet.





**Figure 2.** New records of moth species for Colombia. Notodontidae. **A, B.** *Heorta pulchra*. **C.** *Malocampa lemoulti*. **D.** *Mari-anita divisa*. **E.** *Rhudara cornuta*. **F.** *Sericochroa ceruroides*. **G.** *Sericochroa condita*. **H.** *Skaphita meridionalis*. **I.** *Trumanda camilla*. **J.** *Elymiotis complicata*. **K.** *Kryptokalos viridans*. **L, M.** *Nycterotis inexpectata*. **N.** *Nystalea arimathea*. **O.** *Nystalea joanna*. **P.** *Nystalea lineiplena*. **Q.** *Nystalea marona*. Scale bar: 5 mm.

**Identification.** This species is characterized by the light brown forewing, finely speckled with darker brown, with two fine but clearly noticeable orangish-brown lines—an antemedial one straight, slightly oblique, and a subterminal one parallel to the termen. There is a big, conspicuous, subcostal, rectangular, dark-brown spot beyond the antemedial line; its angles are rounded.

**Comments.** Previously known from Peru, Brazil, Suriname and French Guiana.

#### ***Hemiceras metallescens* Schaus, 1906**

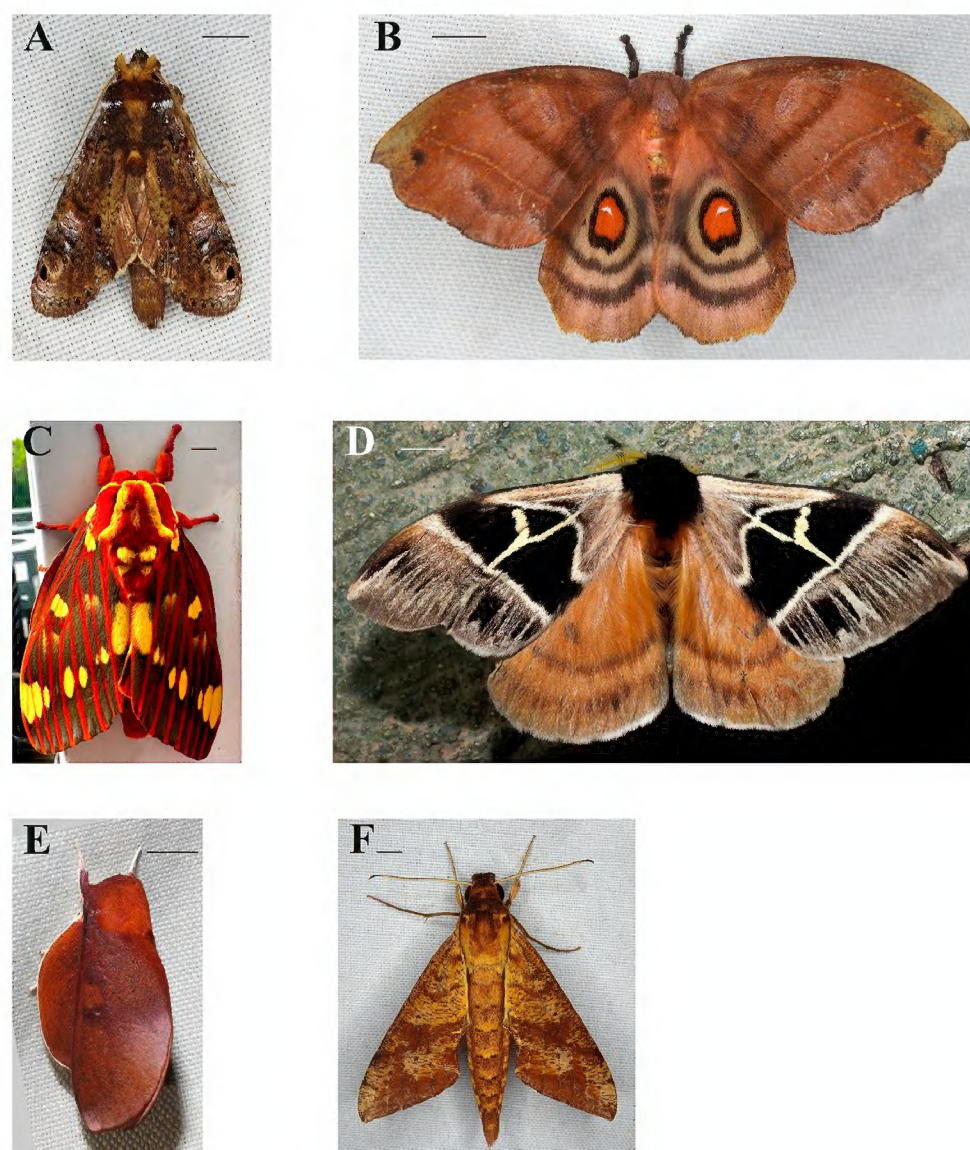
Figures 1H, 4B

**Observation.** COLOMBIA – AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 18.I.2024; R. Bernal obs., photographed at white sheet.

**Identification.** The forewings are iridescent, golden brown, with a yellowish beige stripe along the costal margin. The double, undulating, incomplete medial line arising at the sinus in the ventral margin, and filled with orange, is characteristic.

**Comments.** Previously known from northern Brazil and the Guianas.





**Figure 3.** New records of moth species for Colombia. Notodontidae. **A.** *Nystalea ocellata*. Saturniidae. **B.** *Automerina cypria*. **C.** *Citheronia regalis*. **D.** *Dirphia apeggyae*. **E.** *Psilopygoides oda*. Sphingidae. **F.** *Xylophanes rufescens*. Scale bar: 5 mm.

#### ***Maschane calpe* (Felder, 1874)**

Figures 1I, 5G

**Observations.** COLOMBIA – CAUCA • Municipio de Piamonte, Estación Agroforestal Guayuyaco; 01°01'14"N, 076°26'41"W; alt. 293 m; 21.VIII.2023; B. Martínez obs., photographed at white sheet. AMAZONAS • La Pedrera, Resguardo Curare; 01°18'04"S, 069°42'56"W; alt. 83 m; 22.I.2024; B. Martínez obs., photographed at white sheet.

**Identification.** The forewing is deep reddish brown, with a dark brown line from the edge of the anal sinus to the apex; this is unmistakable because of the basal tooth on the anal margin, which is long, rectangular, or somewhat falcate backwards, ending in long cilia.

**Comments.** Previously known from northern Brazil.

#### ***Maschane ciliata* (Felder, 1874)**

Figures 1J, 4F

**Observations.** COLOMBIA – CAUCA • Municipio de Piamonte, Estación Agroforestal Guayuyaco; 01°01'14"N, 076°26'41"W; alt. 293 m; 17.VIII.2023; B. Martínez obs., photographed at white sheet. AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 31.I.2024; R. Bernal obs., photographed at white sheet.

**Identification.** The forewings are a pale, creamy beige color, with costal margin finely ochre. A violet spot is present in the center of the costa, accompanied by a wavy, dark yellow antemedial shade, and a similar point at the end of the cell. A dark reddish-brown marginal line follows, preceded by a brown shade with white points on the veins, and succeeded by a dark violet shade with lilac scales scattered. It could be confused with *M. fragilis* Schaus, 1906, previously reported in Colombia by Bernal and Martínez (2023). However, in *M. fragilis*, the primary wings are pale yellow, and the violet and lilac margins along the costal and external edges are broader. Additionally, the antemedial shade in *M. fragilis* has an angular shape beneath vein 2, then becomes oblique towards the inner margin, bordered outward by a darker brown line (Schaus 1906).

**Comments.** Previously known from Costa Rica, Suriname, and French Guiana.

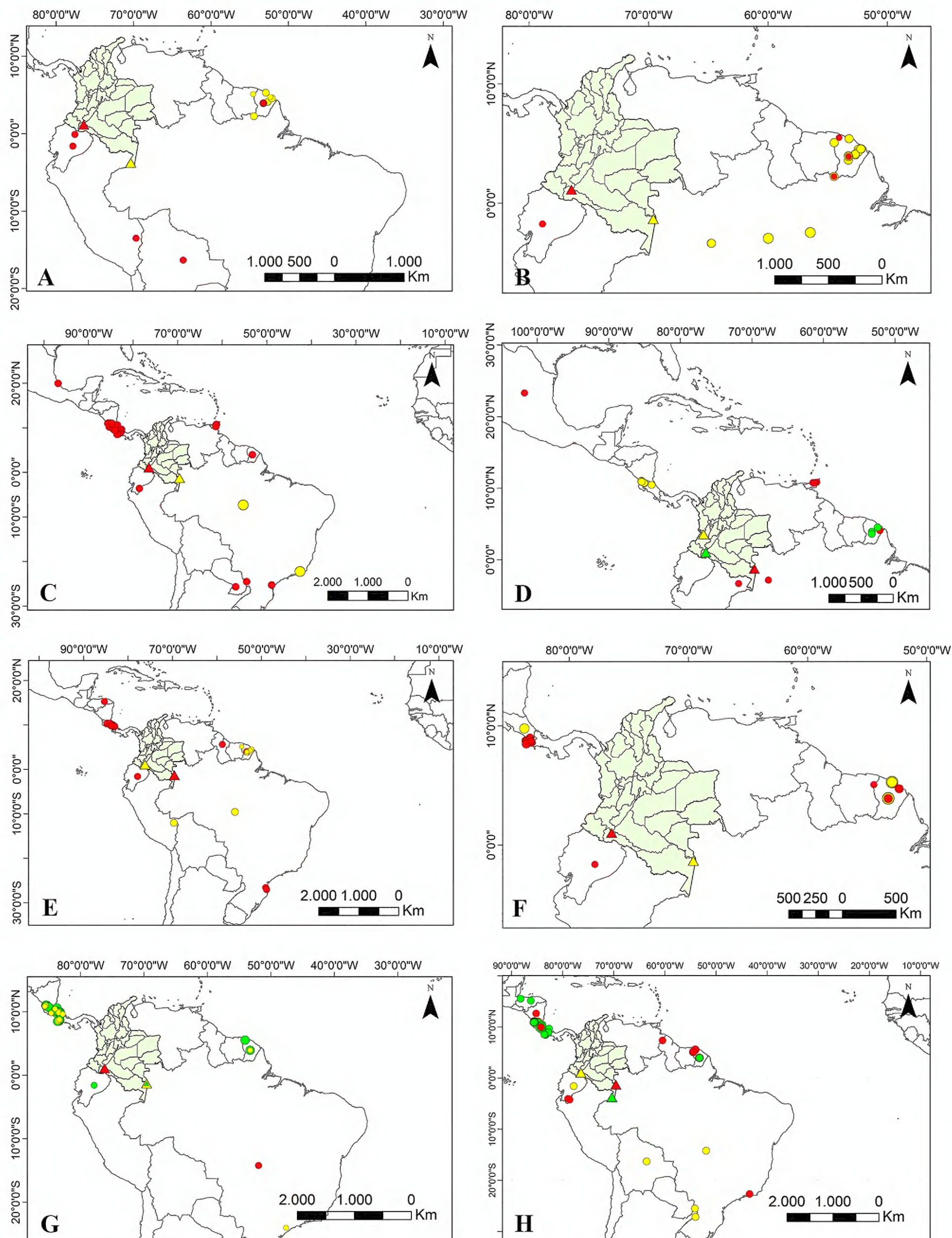
Heterocampinae

#### ***Cecrita poulsoni* (Schaus, 1906)**

Figures 1K, 4E

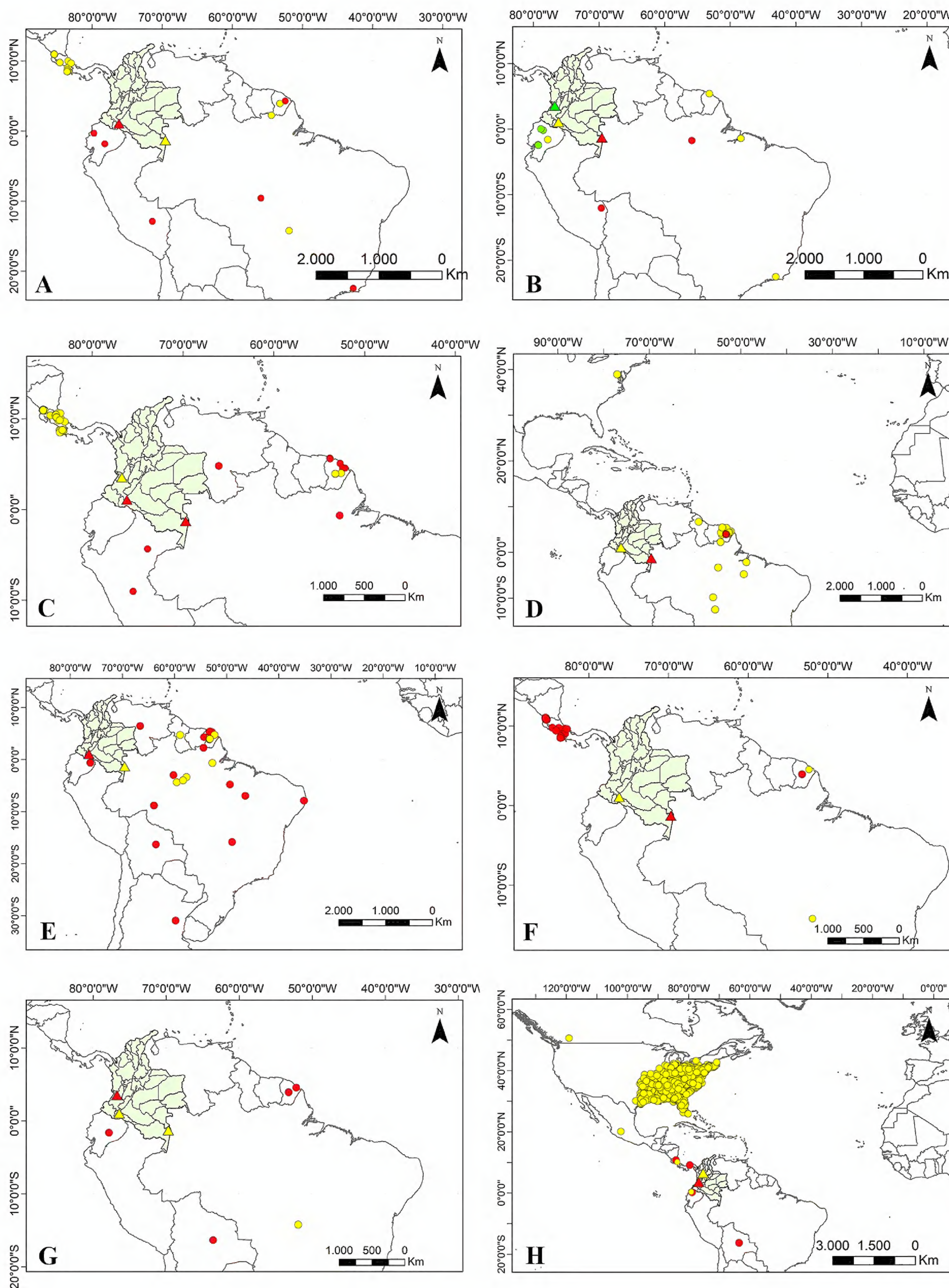
**Observation.** COLOMBIA – AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 31.I.2024; B. Martínez obs., photographed at white sheet.





**Figure 4.** Map showing the new records and the known distribution for each moth species in this study. New records are showed with a triangle and known distributions with a circle. **A.** *Apela picturata* (yellow), *Oricia phryganeata* (red). **B.** *Hemiceras metallescens* (yellow), *Phaeochlaena bicolor* (red). **C.** *Canodia carmelitoides* (yellow), *Hemiceras alba* (red). **D.** *Dottia effecta* (yellow), *Farigia magniplaga* (red), *Malocampa lemoulti* (green). **E.** *Hemiceras lissanella* (yellow), *Cecrita poulsoni* (red). **F.** *Hemiptereros lunula* (yellow), *Maschane ciliata* (red). **G.** *Marianita divisa* (yellow), *Skaphita meridionalis* (red), *Elymiotis complicata* (green). **H.** *Kryptokalos viridans* (yellow), *Nystalea joanna* (red), *Nystalea marona* (green).





**Figure 5.** Map showing the new records and the known distribution for each moth species in this study. New records are showed with a triangle and known distributions with a circle. A, *Nystalea lineiplena* (yellow), *Nycterotis inexpectata* (red), *Dirphia apeggyae* (green); B, *Sericochroa ceruroides* (yellow), *Trumanda camilla* (red); C, *Sericochroa condita* (yellow), *Xylophanes rufescens* (red); D, *Psilopygoides oda* (yellow), *Nystalea arimathea* (red); E, *Apela acutidivisa* (yellow), *Automerina cypria* (red); F, *Rhudara cornuta* (yellow), *Nystalea ocellata* (red); G, *Maschane calpe* (yellow), *Ginaldia infanta* (red), H, *Citheronia regalis* (yellow), *Heorta pulchra* (red).



**Identification.** This species is characterized by having dark green forewings, which are mottled with blackish grey, with the inner margin speckled in brown with beige from near the base of the costa to the medial area. The collar and thorax are speckled in beige with brown (Schaus 1906).

**Comments.** Previously known from Honduras to French Guiana, Ecuador and Brazil but not previously recorded in Colombia.

***Dottia effecta* Schaus, 1911**

Figures 1L, 4D

**Observation.** COLOMBIA – VALLE • Western Andes, Municipio de Dagua, Queremal; 03°32'01"N, 076°45'12"W; alt. 1,200 m; 23.XII.2023; R. Bernal obs., photographed at white sheet.

**Identification.** This species is characterized by its brown forewings, the black antemedial line, geminate, undulating, deeply outbent from vein 5, forming a showy white peak at vein 3, and then descending along that vein in the shape of a green line that ends beyond the medial line. There are three narrow, parallel, chocolate-brown lines along vein 5 from the medial to apex, the one closer to the costa ending in a narrowly elliptical white spot; there is a similar, larger white spot between veins 3 and 4.

**Comments.** Previously known from Costa Rica.

***Farigia magniplaga* Schaus, 1906**

Figures 1M, 4D

**Observations.** COLOMBIA – AMAZONAS • La Pedrera, Resguardo Curare; 01°18'04"S, 069°42'56"W; alt. 83 m; 23.I.2024; B. Martínez obs., photographed at white sheet. **AMAZONAS** • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 27.I.2024; R. Bernal obs., photographed at white sheet.

**Identification.** This species is unmistakable because of its grayish-brown forewing, which has a large, almost circular velvety, blackish-brown space on the middle area; its border touches the anal margin.

**Comments.** Previously known from Mexico to French Guiana (Seitz 1913–1935), but not previously recorded in Colombia.

***Ginaldia infanta* (Dyar, 1908)**

Figures 1N, 5G

**Observation.** COLOMBIA – CAUCA • Municipio de Piamonte, Estación Agroforestal Guayuyaco; 01°01'14"N, 076°26'41"W; alt. 293 m; 17.VIII.2023; B. Martínez obs., photographed at white sheet.

**Identification.** This species is characterized by its silvery gray-white forewing, which has a brown costal, triangular spot in the subbasal space, the postmedial line represented by two black marks between veins 4 and 6, a black distinct L-shaped mark below vein 3, its long arm paralleling the vein, filled in below with brown, and three subterminal brown angular marks on the costal edge. It was compared to the type specimen deposited in the collection of the Smithsonian National Museum of Natural History (<https://collections.nmnh.si.edu/search/ento/?ark=ark:/65665/3ec710aadd62f4f868426f7fd8bd78170>).

**Comments.** Previously known Ecuador and Peru to French Guiana.

***Hemipecteros lunula* (Dognin, 1908)**

Figures 1O, 4F

**Observation.** COLOMBIA – AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 30.I.2024; R. Bernal obs., photographed at wall near white sheet.

**Identification.** The pattern of the forewings is somewhat like that of *H. asterix* Thiaucourt, 2003, but in *H. lunula*, these are darker, and the crescent-shaped reniform is immersed in scales of brownish-black color. Our material was compared to the type specimen deposited in the collection of the Smithsonian National Museum of Natural History (<http://n2t.net/ark:/65665/m3e97cf5e9-bba4-41e2-856f-f5aa4998c85e>).

**Comments.** Previously known from Costa Rica and French Guiana.

***Heorta pulchra* (Schaus, 1905)**

Figures 2A, B, 5H

**Observation.** COLOMBIA – VALLE • Western Andes, Municipio de Dagua, Queremal; 03°32'01"N, 076°45'12"W; alt. 1,200 m; 25.XII.2023; R. Bernal obs., photographed at white sheet.

**Identification.** The costal margin of the forewings is lilac, with darker oblique lines; two antemedian and three postmedian lines, the last two separated by a white shadow; a clear violet stripe is present over the median area; the end of the cell is pale green with a black spot; there is a white stripe on the median



vein extending to vein 2; a dark green shadow below and between vein 2 and the outer margin; the inner margin is lilac; fringes on the inner margin are green; vein 4 is dark violet, the other veins speckled with violet and white, partially bordered with lilac; two rows of dark dots on the veins; green stripes between the veins; black terminal dots between the veins (Schaus 1906).

**Comments.** Previously known from Costa Rica, Ecuador and Bolivia, but not previously recorded in Colombia. This is the first record of the genus *Heorta* in Colombia.

#### ***Malocampa lemoulti* Dognin, 1908**

Figures 2C, 4D

**Observation.** COLOMBIA – CAUCA • Municipio de Piamonte, Estación Agroforestal Guayuyaco; 01°01'14"N, 076°26'41"W; alt. 293 m; 18.VIII.2023; R. Bernal obs., photographed at white sheet.

**Identification.** This species is characterized by its milky white forewings with fine ochreous scales and the costa marked with four brown dentate spots. The first, subbasal, extends on the costa, forming an obtuse triangular shape that descends to the median. The following two are small points, and the fourth, in the second half, is two or three times larger than the first one and has a similar shape, descending to vein 4 but not reaching the apex. The hindwings are completely milky white. The body is white. Although the design of the forewings is slightly like that of *M. bolivari* (Schaus, 1894) and *M. piratica* Schaus, 1906, the latter two have a dark stripe on the inner margin. Hindwings in both species are brown, and their bodies are brownish-gray and black, respectively.

**Comments.** Previously known from French Guiana.

#### ***Marianita divisa* (Schaus, 1901)**

Figures 2D, 4G

**Observation.** COLOMBIA – AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 30.I.2024; R. Bernal obs., photographed at white sheet.

**Identification.** Differs from *M. definitiva* (Dognin, 1922), the most similar species, in the irregular margin of the brown basal half of the FW, and in the undulating postmedial row of intervenal irregular bluish-gray spots.

**Comments.** Previously known from Costa Rica, northern Brazil, and French Guiana.

#### ***Rhudara cornuta* Thiaucourt, 1996**

Figures 2E, 5F

**Observation.** COLOMBIA – CAUCA • Río Fragua, Mirador Kwarí; 01°08'34"N, 076°26'41"W; alt. 428 m; 19.VIII.2023; B. Martínez obs., photographed at white sheet.

**Identification.** This species differs from other *Rhudara* species in the continuous dark brown band (vs. band interrupted by white), the big, whitish, triangular area in the anal angle, and the small, narrow, subcostal triangle in the postmedial area.

**Comments.** Previously known from Peru, French Guiana and Brazil.

#### ***Sericochroa ceruroides* (Walker, 1862)**

Figures 2F, 5B

**Observations.** COLOMBIA – CAUCA • Municipio de Piamonte, Estación Agroforestal Guayuyaco; 01°01'14"N, 076°26'41"W; alt. 293 m; 17.VIII.2023; B. Martínez obs., photographed at white sheet.

**Identification.** This species differs from other *Sericochroa* species in the whitish forewings with the basal and terminal areas minutely speckled with brown, the middle area scarcely marked, a black, antemedial line perpendicular from costa, outwardly bent at vein 4, and forming a tooth at vein 3 and a longer one at vein 2. The postmedian line is geminate, inwardly curved, slightly projected inwards at veins 4 and 5, and the area beyond this line is brownish toward the costa.

**Comments.** Previously known from Ecuador, French Guiana, and Brazil.

#### ***Sericochroa condita* (Schaus, 1905)**

Figures 2G, 5C

**Observations.** COLOMBIA – VALLE • Western Andes, Municipio de Dagua, Queremal; 03°32'01"N, 076°45'12"W; alt. 1,200 m; 24.XII.2023; R. Bernal obs., photographed at white sheet. AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 29.I.2029; R. Bernal obs., photographed at white sheet.

**Identification.** This species is characterized by the thick, double, black antemedial line, with the lower line not reaching the costa. The subterminal area between veins 3 and 7 is spotted with light brown, and there



is an oblique line of black dots extending from near the apex to the anal angle. Our material was compared to the type specimen deposited in the collection of the Smithsonian National Museum of Natural History (<http://n2t.net/ark:/65665/331a110f2-244c-4066-9205-7b479ee1331f>).

**Comments.** Previously known from Costa Rica and French Guiana.

***Skaphita meridionalis* Draudt, 1933**

Figures 2H, 4G

**Observations.** COLOMBIA – CAUCA • Río Fragua, Mirador Kwarí; 01°08'34"N, 076°26'41"W; alt. 428 m; 19.VIII.2023; B. Martínez obs., photographed at white sheet.

**Identification.** This species differs from *S. salona* (Druce, 1894) (of which it was originally described as a form) in the conspicuous reddish forewings speckled with violet, and the anal half and the costal margin green (Draudt in Seitz 1932).

**Comments.** Previously known from Brazil.

***Trumanda camilla* (Dognin, 1923)**

Figures 2I, 5B

**Observation.** COLOMBIA – AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 29.I.2024; R. Bernal obs., photographed at white sheet.

**Identification.** This is the only species of *Trumanda* with two big spots near the anal margin; in the basal half of the forewing there is a big grayish area, which becomes black towards base, and there is a large triangular black spot below this.

**Comments.** Previously known from southern Peru and northern Brazil.

Nystaleinae

***Elymiotis complicata* Dognin, 1909**

Figures 2J, 4G

**Observation.** COLOMBIA – AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 27.I.2024; B. Martínez obs., photographed at white sheet.

**Identification.** The forewings have a complicated, irregular pattern, which includes whitish green near the base, a violet central area with three green, irregular spots, a big, light-brown area toward the anal angle, and a small, semicircular area at the apex marked with brown and green. This complicated pattern (to which the epithet refers) is unlike that of any other species of *Elymiotis*.

**Comments.** Previously known from Costa Rica, Ecuador and French Guiana.

***Kryptokalos viridans* (Dognin, 1909)**

Figures 2K, 4H

**Observation.** COLOMBIA – CAUCA • Municipio de Piamonte, Estación Agroforestal Guayuyaco; 01°01'14"N, 076°26'41"W; alt. 293 m; 17.VIII.2023; B. Martínez obs., photographed at white sheet.

**Identification.** This species is unmistakable among all Nystaleinae because of the overall green color of the forewings, which are irregularly marked with light brown, a conspicuous, almost circular black spot, and bordered with white near the anal angle.

**Comments.** Previously known from Ecuador, Bolivia, and southeastern Brazil. This is the first record of the genus *Kryptokalos* in Colombia.

***Nycterotis inexpectata* (Thiaucourt, 2008)**

Figures 2L, M, 5A

**Observations.** COLOMBIA – Cauca • Municipio de Piamonte, Estación Agroforestal Guayuyaco; 01°01'14"N, 076°26'41"W; alt. 293 m; 16.VIII.2023; B. Martínez obs., photographed at white sheet.

**Identification.** The forewings are pale brown;  $\frac{1}{3}$  of the anal area is dark brown, speckled with dark moss-green, and the costal  $\frac{1}{3}$  is moss-green, irregularly defined in the middle area; all major veins in the postmedial area are finely marked in dark brown and with a fine light brown line on each side.

**Comments.** Previously known from Ecuador, Peru, French Guiana, and Brazil.

***Nystalea arimathea* Schaus, 1923**

Figures 2N, 5D

**Observations.** COLOMBIA – AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 30.I.2024; R. Bernal obs., photographed at white sheet.



**Identification.** This species is unmistakable because of the forewings, which are light brown to the postmedial line, almost unmarked, and in strong contrast with the area from the postmedial to the termen, which is darker, first chocolate brown and then grayish-brown; the latter area has a conspicuous chocolate brown subterminal line, which is bordered on each side with light brown.

**Comments.** Previously known from French Guiana.

***Nystalea joanna* Schaus, 1906**

Figures 2O, 4H

**Observations.** COLOMBIA – AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 31.I.2024; R. Bernal obs., photographed at white sheet.

**Identification.** This species is characterized by the grayish-white forewing, with a broad brown band, minutely speckled with white, along the anal margin, and a thick, Y-shaped light brown mark from the postmedial area to the termen.

**Comments.** Previously known from Nicaragua, Ecuador, the Guianas, and Brazil.

***Nystalea lineiplena* Walker, 1857**

Figures 2P, 5A

**Observations.** COLOMBIA – AMAZONAS • La Pedrera; 01°19'06"S, 069°35'10"W; alt. 74 m; 31.I.2024; R. Bernal obs., photographed at white sheet.

**Identification.** This species is unmistakable because of the longitudinal black line from the base of the forewing to the termen, bordered on the costal side by a series of parallel brown, black, and buff lines, which become shorter towards the apex.

**Comments.** Previously known from Mexico, Costa Rica, French Guiana, and Brazil.

***Nystalea marona* Schaus, 1905**

Figures 2Q, 4H

**Observations.** COLOMBIA – AMAZONAS • Puerto Nariño; 03°46'47"S, 070°21'56"W; alt. 89 m; 18.I.2024; R. Bernal obs., photographed at white sheet.

**Identification.** This species is characterized by the gray and brown mottled pattern of the forewing, with a black, undulating subterminal line, and a poorly defined postmedial row of big, circular pale brown spots, basally bordered with black.

**Comments.** Previously known from Honduras, Costa Rica, and French Guiana.

***Nystalea ocellata* Rothschild, 1917**

Figures 3A, 5F

**Observations.** COLOMBIA – AMAZONAS • La Pedrera, Resguardo Curare; 01°18'04"S, 069°42'56"W; alt. 83 m; 22.I.2024; B. Martínez obs., photographed at white sheet.

**Identification.** This species is easily separated from other species of *Nystalea* by the conspicuous, black, triangular postmedial spot near the costa of the forewing (to which the epithet *ocellata* refers).

**Comments.** Previously known from Costa Rica and French Guiana.

Saturniidae

***Automerina cypria* Gmelin, 1788**

Figures 3B, 5E

**Observation.** COLOMBIA – CAUCA • Municipio de Piamonte, Estación Agroforestal Guayuyaco; 01°01'14"N, 076°26'41"W; alt. 293 m; 18.VIII.2023; B. Martínez obs., photographed at white sheet.

**Identification.** This species can be separated from other species by the pinkish-brown forewing having a dark-brown medial band, by the black ring of the ocelli of the hindwing having a short projection towards the termen (see illustration in Cramer 1782).

**Comments.** Previously known from Ecuador to Venezuela, French Guiana, Bolivia, Brazil, and Argentina.

***Citheronia regalis* Fabricius, 1793**

Figures 3C, 5H

**Observation.** COLOMBIA – ANTIOQUIA • Central Andes, Barbosa; 06°27'36"N, 075°19'12"W; alt. 1,400 m; 16.VI.2023; Milena Meneses obs., photographed on a wall.



**Identification.** This species differs from other species of *Citheronia* by having thick, showy, red lines along the veins in the absence of a yellow spot in the area between veins 5 and 6 of the forewing.

**Comments.** Previously known from Canada to Panama and Ecuador.

***Dirphia apeggyae* Brechlin, Meister & Käch, 2011**

Figures 3D, 5A

**Observation.** COLOMBIA – VALLE • Western Andes, Municipio de Dagua, Queremal; 03°32'01"N, 076°45'12"W; alt. 1,200 m; 22.XII.2023; R. Bernal obs., photographed at wall near white sheet.

**Identification.** This species differs from *D. subhorca* Dognin, 1916, the most similar species, in the slightly outbent (vs. slightly inbent) postmedial line of the forewing, the thick Y-shaped mark on the brown middle area, and the lower leg reaching the postmedial line (vs. thinner mark, its lower leg not reaching the post-medial line).

**Comments.** Previously known from Ecuador.

***Psilopygoides oda* Schaus, 1905**

Figures 3E, 5D

**Observation.** COLOMBIA – CAUCA • Río Fragua, Mirador Kwarí; 01°08'34"N, 076°26'41"W; alt. 428 m; 19.VIII.2023; B. Martínez obs., photographed at white sheet.

**Identification.** This is the only species of *Psilopygoides*. It is unmistakable among all Ceratocampinae because of its reddish-brown, almost immaculate forewings, which in life are held in the shape of a steep roof, exposing the costal ⅓ of the concolorous hindwings.

**Comments.** Previously known from French Guiana and central Brazil.

Sphingidae

***Xylophanes rufescens* (Rothschild, 1894)**

Figures 3F, 5C

**Observations.** COLOMBIA – AMAZONAS • La Pedrera, Resguardo Curare; 01°18'04"S, 069°42'56"W; alt. 83 m; 22.I.2024; B. Martínez obs., photographed at white sheet. CAUCA • Río Fragua, Mirador Kwarí; 01°08'34"N, 076°26'41"W; alt. 428 m; 19.VIII.2023; B. Martínez obs., photographed at white sheet.

**Identification.** This is the only species of *Xylophanes* combining forewings with yellowish and brownish color, no well-defined lines, a densely striolate surface, and a subcostal row of small, irregular, black dots.

**Comments.** Previously known from Peru, Venezuela, French Guiana, and Brazil. Species identified by Yenni Correa-Carmona.

## DISCUSSION

The high number of new records in moth families for which species checklists have been recently compiled shows how poorly known Colombian moths still are. The family Notodontidae is particularly noteworthy. The 31 species recorded here represent an increase of 6% to the 515 species recorded in Colombia by Prada-Lara et al. (2023). When these 31 species are added to the 54 species whose Colombian records in Prada-Lara et al. (2023) derive from the recently published field guide of Colombian moths (Bernal and Martínez 2023), and the 22 records that are derived from iNaturalist, it turns out that 19.6% of all records of Notodontidae species from Colombia are based on photographs of living individuals rather than on museum specimens. This highlights the contribution of citizen science, and the great input that moth watchers may give to the knowledge of this group, when species identifications are carefully made, using all the resources currently available online.

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## ADDITIONAL INFORMATION

### Conflict of interest

The authors declare that no competing interests exist.

### Ethical statement

No ethical statement is reported.

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### Author contributions

Conceptualization: BM, RB. Data curation: BM, RB. Formal analysis: BM, RB. Funding acquisition: RB, BM, JVR-M. Investigation: RB, BM. Methodology: RB, BM, JVR-M. Resources: BM, RB. Validation: RB, BM, JVR-M. Writing – original draft: BM, RB. Writing – review and editing: BM, RB, JVR-M.

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### Data availability

All data that support the findings of this study are available in the main text.

## REFERENCES

- Becker V** (2014) Checklist of new world Notodontidae (Lepidoptera: Noctuoidea). *Lepidoptera Novae* 7: 1–40.
- Bernal R, Martínez B** (2023) Polillas de Colombia. Guía de Campo. Wildlife Conservation Society (WCS), Sociedad Antioqueña de Ornitología (SAO), Jardín Botánico del Quindío (JBQ). Bogotá, Colombia, 699 pp.
- Centre for Biodiversity Genomics** (2023 onwards) Bold: Barcode of Life Data System. <http://v4.boldsystems.org/index.php>. University of Guelph, Guelph, Canada. Accessed on 2024-03-01.
- Comoglio L, Brechlin R** (2023) An updated checklist of the wild silkmoths (Lepidoptera, Saturniidae) of Colombia. *ZooKeys* 1178: 191–264. <https://doi.org/10.3897/zookeys.1178.72084>
- Correa-Carmona Y, Vélez-Bravo AH, Wolff-Echeverri MI** (2015) Current status of knowledge of Sphingidae Latreille, 1802 (Lepidoptera: Bombycoidea) in Colombia. *Zootaxa* 3987: 1–73. <https://doi.org/10.11646/zootaxa.3987.1.1>
- Cramer P** (1782) *De uitlandsche kapellen voorkomende in de drie waereld-deelen, Asia, Africa en America*. 3. Baalde, Amsterdam, Netherlands, 376 pp.
- Dognin P** (1913) *Hétérocères nouveaux de l'Amérique du Sud* Vol. 4, fasc. 7–13. A. Breuer, Brussels, Belgium, 398 pp.
- Druce H** (1881–1900) *Biologia Centrali-Americana. Insecta. Lepidoptera–Heterocera — Volume I*. R.H. Porter, London, England, 423 pp.
- Fieldguide** (2020 onwards) The field guide for Lepidoptera. <http://www.leps.fieldguide.ai>. Accessed on: 2024-03-01.
- GBIF** (The Global Biodiversity Information Facility) (2023 onwards) <http://www.gbif.org>. Copenhagen, Denmark. Accessed on 2024-03-01.
- Guevara C, Alfonso DI, Piñas-Rubio F, Onore G** (2002) Mariposas del Ecuador (Continental y Galápagos). Vol 17a. Familia Sphingidae. Museo de Zoología-Pontificia Universidad Católica del Ecuador, Quito, Ecuador, 243 pp.
- Jiménez-Bolívar AC, Prada-Lara L, St Laurent RA, Rougerie R** (2021) The wild silkmoths (Lepidoptera: Bombycoidea: Saturniidae) of Colombia: a database of occurrence points and taxonomic checklist. *Zootaxa* 5081 (2): 151–202. <https://doi.org/10.11646/zootaxa.5081.2.1>
- Miller JS** (2009) Generic revision of the Dioprinae (Lepidoptera: Noctuoidea: Notodontidae). *Bulletin of the American Museum of Natural History* 321: 1–972. <https://doi.org/10.1206/321.1>
- Prada-Lara L, Jiménez-Bolívar AC, St Laurent RA** (2023) Prominent moths (Lepidoptera: Notodontidae) of Colombia. *Zootaxa* 5284 (3): 401–444. <https://doi.org/10.11646/zootaxa.5284.3.1>
- Piñas-Rubio F, Manzano I** (2002). Mariposas del Ecuador. Vol 16a. Familia: Saturniidae. Compañía de Jesús, Quito, Ecuador, 79 pp.
- Piñas-Rubio F** (2004b). Mariposas del Ecuador. Vol 18. Familia: Notodontidae. Compañía de Jesús, Quito, Ecuador, 94 pp.
- Rothschild LW** (1868–1937) On some apparently new Notodontidae. *Novitates Zoologicae* 24: 231–264.
- Schaus W** (1906) Descriptions of new South American moths. *Proceedings of the United States National Museum* 29: 179–345.
- Schintlmeister A** (2022) Neotropical Notodontidae II—genus *Hemiceras* (Lepidoptera: Notodontidae). *Proceedings of the Museum, Witt Munich*, 11: 1–502.
- Seitz A** (1906–1938) *Die Gross-Schmetterlinge der Erde: eine systematische Bearbeitung der bis jetzt bekannten Gross-Schmetterlinge*. 16 Vols. Fritz Lehman Verlag, Stuttgart, Germany, 400 pp.
- Ziegler H** (2020 onwards) *Wildlife / Butterflies & Moths of Costa Rica*. <http://www.tropicleps.ch>. Chur, Switzerland. Accessed on 2024-03-01.